

In re: O'Foghludha
Serial No.: 09/614,490
Filed: July 11, 2000
Page 2 of 12

In the Claims:

1. (Currently Amended) An integral source material having at least one nuclide that is activated by exposure to radiation, the nuclide is a chemically bound constituent of the backbone of a polymer chain of the integral source material, wherein the integral source material is configured before activation to provide a device wherein the device is selected from the group consisting of test-objects, rectangular and disc shaped sources configured to radiate an area, radioactive enclosures, flood sources, nuclear imaging devices, shrouds and excitation sources for energy-dispersive fluorescence analysis.

2. (Canceled).

C1
3. (Original) The integral source material according to Claim 1, wherein the polymer is selected from the group consisting of polypropylene, polyethylene terephthalate, nylon, acrylates, polyurethane, polyphenylene oxide blends, polyphenylsulfone, polysulfone, polyether sulfone, polyphenylene sulfide, phenyletheretherketone, polyetherimide, polyphenylmetalloxiloxane, fluorine containing polyphosphazenes and liquid crystal polymer and blends and combinations thereof.

4. (Original) The integral source material according to Claim 1, wherein the nuclide is selected from the group consisting of one or more of Li, Na, C, ~~F~~, Al, P, S, ~~Cl~~, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ge, Sr, Y, Zr, Mo, Tc, Rh, Pd, ~~I~~-Cs, Ba, La, Ce, Eu, Gd, Re, Ir, Au, Hg, Pb, Bi, Po and Am.

5. (Previously Presented) An integral source material according to Claim 1, wherein the device comprises a checkerboard comprising alternating active and inactive squares, the active squares containing the integral source material.

6. (Previously Presented) An integral source material according to Claim 1, wherein the device comprises a rectangular substrate for irradiating an area.

In re: O'Foghludha
Serial No.: 09/614,490
Filed: July 11, 2000
Page 3 of 12

7. (Previously Presented) An integral source material according to Claim 1, wherein the device comprises a tube enclosure having radioactive walls.

8. (Previously Presented) An integral source material according to Claim 7, wherein the tube enclosure comprises a flexible material.

9. (Previously Presented) An integral source material according to Claim 7, wherein the tube enclosure comprises a rigid material.

C1
cont.

10. (New) A method of forming an integral source material comprising:
providing an integral source material comprising a polymer chain having at least one non-radioactive nuclide that is activatable by exposure to radiation and is a chemically bound constituent of the backbone of the polymer of the integral source material;
forming the integral source material into a device, wherein the device is selected from the group consisting of test-objects, rectangular and disc shaped sources configured to radiate an area, radioactive enclosures, flood sources, nuclear imaging devices, shrouds and excitation sources for energy-dispersive fluorescence analysis; and
exposing the integral source material to radiation to activate the at least one nuclide of the polymer chain.

11. (New) The method of Claim 10, wherein exposing the integral source material to radiation comprises exposing the integral source material to neutrons.

12. (New) The method of Claim 10, wherein the polymer is selected from the group consisting of polypropylene, polyethylene terephthalate, nylon, acrylates, polyurethane, polyphenylene oxide blends, polyphenylsulfone, polysulfone, polyether sulfone, polyphenylene sulfide, phenyletheretherketone, polyetherimide, polyphenylmetalloxiloxane, fluorine containing polyphosphazenes and liquid crystal polymer and blends and combinations thereof.

In re: O'Foghludha
Serial No.: 09/614,490
Filed: July 11, 2000
Page 4 of 12

13. (New) The method of Claim 10, wherein the nuclide is selected from the group consisting of one or more of Li, Na, Al, P, S, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ge, Sr, Y, Zr, Mo, Tc, Rh, Pd, Cs, Ba, La, Ce, Eu, Gd, Re, Ir, Au, Hg, Pb, Bi, Po and Am.
14. (New) The method of Claim 10, wherein the device comprises a checkerboard comprising alternating active and inactive squares, the active squares containing the integral source material.
15. (New) The method of Claim 10, wherein the device comprises a rectangular substrate for irradiating an area.
16. (New) The method of Claim 10, wherein the device comprises a tube enclosure having radioactive walls.
17. (New) The method of Claim 16, wherein the tube enclosure comprises a flexible material.
18. (New) The method of Claim 17, wherein the tube enclosure comprises a rigid material.
19. (New) The integral source material according to Claim 1, wherein the polymer further comprises a side chain comprising a second nuclide consisting of I, F or Cl.
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